

## REMARKS

Claims 1, 3 and 8 are active. Claims 1, 3 and 8 are rejected under 35 USC 103 as being unpatentable over Kasai in view of Mutsaers.

Claim 3 was previously amended in the prior response to meet the objections thereto based on formal matters.

Minor amendment is made to claim 1 to improve its form. Other amendments are made to claim 1 to correct prior technical amendment errors made as described below.

Amended claims 1, 3 and 8 are submitted for the examiner's reconsideration.

Amendments made to claim 1 are to correct an obvious formality errors not noted by the Action or applicants previously. Claim 1 always was intended to state that the gate electrode of the charging transistor be not connected to any voltage and floats as to any potential, i.e., is potential free. See the figures and the original claims of the PCT application and the amended claims in the PCT application. The gate electrode of the switching transistor, however, is directly capacitively coupled to one of the drain or source electrodes of the switching transistor and not to the charging transistor as previously claimed in error. See the figures and applicants' specification. The original PCT application claims claimed that the gate electrode of the charging transistor was potential free. The original translated claim 1 states that the gate electrode of the charging transistor is not connected via an electrical line to "a voltage source."

Claim 1 as amended0 herein conforms to this original claim. The preliminary amendment, which changed the claim to read the "gate electrode is not connected via an electrical line to the voltage source," was in error. Applicants' amendment filed Aug. 12, 2008, which changed the claim to its present language prior to the present

amendment is also in error in that the gate electrode of the switching transistor should have been directly capacitively coupled to one of the drain and source electrodes of the switching transistor and not of the charging transistor gate electrode as amended therein. This is a technical error not shown in the drawings nor noted by the undersigned nor the Examiner in the prior Actions. The present amendment thus is not a substantive change in regard to the cited reference, but is made to correct prior formal errors made in prior amendments and not previously noted.

Amended claim 1 is not suggested, disclosed or otherwise made obvious by any of the cited references of record including Kasai or Mutsaers, taken individually or in combination.

Amended claim 1 calls for:

at least one organic charging field effect transistor (charging FET) on a substrate.

the drain-source electrodes of the charging and switching transistors being arranged to be coupled in series between a voltage source and a reference potential

such that the gate electrode of the charging FET is not connected via an electrical line directly to a voltage source, to the reference potential, to the input or to the output,

wherein the gate electrode of the switching FET is directly capacitively coupled to one of the source/drain electrodes of the switching FET  
(underlining added)

The Advisory Action states that "Referring to Tr1 as a driving FET rather than a charging FET, is merely a labeling difference." Applicants disagree for reasons given herein. However, claim 1, as amended, patentably distinguishes claim 1 from Kasai in addition to the fact that Tr1 is not a charging transistor as explained herein below. Also no switching transistor is disclosed by Kasai as also explained herein below.

As amended, claim 1 calls for the gate electrode of the switching FET as being directly capacitively coupled to one of the source/drain electrodes of the switching FET. Therefore, the Action in asserting that Tr1 is the charging transistor is moot. It matters not which transistor is deemed the charging transistor with respect to the above quoted amended claim 1 clause, since no switching transistor is disclosed by the reference as claimed.

Claim 1 calls for:

1. such that the gate electrode of the charging FET is not connected via an electrical line directly to a voltage source, to the reference potential, to the input or to the output,
2. wherein the gate electrode of the switching FET is directly capacitively coupled to one of the source/drain electrodes of the switching FET

As to point 1, no gate of Kasai is floating with no potential, all gates are connected to a voltage source contrary to what is claimed. Kasai does not suggest or disclose this claimed structure. The Tr1 gate electrode, if deemed a charging transistor as asserted, is directly connected to a line connected to point E exhibiting an applied voltage V2. The gate electrode of Tr2, if deemed a charging transistor as submitted by applicants, is directly connected to a line receiving an applied voltage  $V_{SEL}$ . The so called Kasai switching transistor Tr4 gate (which is not a switching transistor) receives an applied voltage  $V_{gp}$ . Kasai states that Tr4 is always on, [0076] lines 5-6, therefore it can not be a switching transistor as asserted by the Action.

Regardless of which transistor of Kasai is deemed the charging transistor, then it is plain that all of their gate electrodes are connected via a line directly to a voltage source contrary to amended claim 1. The remaining transistor of the Kasai Fig. 4 circuit,

transistor Tr3, has its gate connected via a line to an applied voltage  $V_{SEL}$ . Thus no transistor is disclosed by Kasai in which its gate electrode is not connected via a line to a voltage source as claimed much less a charging transistor as claimed. None of the other figures of the reference disclose what is claimed as well. All show a gate electrode receiving a voltage.

The claimed gate of the charging transistor of claim 1 is a floating transistor and no voltage is applied to this gate. See for example applicants' specification, page 2, lines 16-17 wherein it is stated that the gate electrode of the charging FET transistor is potential-free. See also applicants' original PCT claims expressly stating this and see applicants' figures 1 and 2. For this reason alone, amended claim 1 is believed allowable as no gate in Kasai is potential free. But claim 1 is also believed allowable for the following reasons.

The terms "charging" and "switching" are not labels.

The Advisory asserts that assigning the term "charging" to a transistor of Kasai is merely a label. This conclusion also applies to the term "switching" transistor as well. Applicants disagree that these terms are mere labels. These are structural limitations directed to the circuit function of the transistors in that they either serve to charge the capacitor or perform a switching function. Such functions are not mere labels.

Fig. 4 shows that the source-drain electrodes of Tr1 are connected between points D and E. Transistor Tr3 is connected between a current source 4 and point D. One terminal of the capacitor is connected to point D. The other terminal of the capacitor is connected to terminal E. Terminals D and E are in series with the S/D



electrodes of Tr2 which are connected between terminals E and B. Kasai states at [0073] page 5,

"electric charge is accumulated in the capacitance element 2 based on an amount of current according to a data signal output from a current source 4. Thus the emitting state of organic electroluminescence can be controlled based on the amount of current according to data."

Current obviously must flow to charge the capacitor between points D and B in the path defined by the S/D electrodes of Tr2, so this is the "charging transistor." Since element 4 is a current source [0073], the current must flow from the source via terminal D to the capacitor 2 through the S/D electrodes of Tr2.

The capacitor controls the conductive state of Tr1 [0072] (lines 8-10 of this paragraph and also via the voltage  $V_2$  at its gate). Therefore whatever current flows through the S/D electrodes of Tr1 is not directed to the capacitor and thus Tr1 does not control the charging of the capacitor, the inverse of what Kasai states.

Further, no convincing line of reasoning is given as to support in Kasai that transistor Tr1 serves to charge the capacitor 2, since the S/D electrodes of Tr1 are in parallel to the series connection of the capacitor 2 and the S/D electrodes of Tr2 as explained above. The charging current to the capacitor thus flows from point D to both Tr1 and to Tr2. Kasai expressly states [0072] "a charge controlling transistor Tr2 for controlling the charge to the capacitance element 2 according to an external signal." That signal may be  $V_{SEL}$ . Thus there is no support in this reference that Tr1 serves as a charging transistor. This is not merely a label, but is descriptive of the function of transistor to effect charging of the capacitor. Kasai expressly states that Tr2 serves this function and not Tr1. The Action has not shown how Tr1 performs this function as disclosed by Kasai. No location is noted in the Action supporting an express description

of this charging function by the reference. In any case this issue is moot in view of the amendments herein.

Point 2. Tr4 is not a switching transistor.

Tr4 is always on. "Tr4 is turned on at all times" [0076]. If Tr4 is on at all times the conclusion in the Final Action of Dec. 16 is in error that Tr4 is a switching transistor (paragr. 6 of the Action). A transistor that is on at all times does not function to perform a switching action. No explanation is given by the Action as to why a transistor that is always on can operate as a switching device. The switching devices in Kasai are switches 21 and 22 and not transistor Tr4. The term "switch" means, in electrical systems, "a device for turning on or off or directing an electric current [e.g., among different paths], or making or breaking a circuit." The Random House College Dictionary, Revised Edition, 1975, page 1329. Kasai transistor Tr4 does not serve as a switch. There is no switching transistor arranged to be in series with the charging transistor as claimed whether the charging transistor be Tr1 as asserted or Tr2 as submitted by applicants. Therefore, this aspect of claim 1 is also missing in the reference.

Mutsaers is cited for disclosing an organic transistor constructed as claimed and is missing the claimed structures discussed above. For the reasons given, claim 1 is believed allowable.


Claims 3 and 8 depend from claim 1 and are believed allowable for at least the same reasons.

Since claims 1, 3 and 8 have been shown to be in proper form for allowance, such action is respectfully requested.

The Commissioner is authorized to respectively charge or credit deposit account 03 0678 for any under or overpayments in connection with this paper including the extension of time fee and RCE fee as noted on the first page of this paper.

Respectfully submitted,  
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